

District I
1625 N. French Dr., Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720
District III
1000 Rio Brazos Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico
Energy, Minerals & Natural Resources Department
OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

OCD-ARTESIA
REC'D: 5/07/2020
Revised August 1, 2011
Submit one copy to appropriate
District Office

☒ AMENDED REPORT
As-Drilled

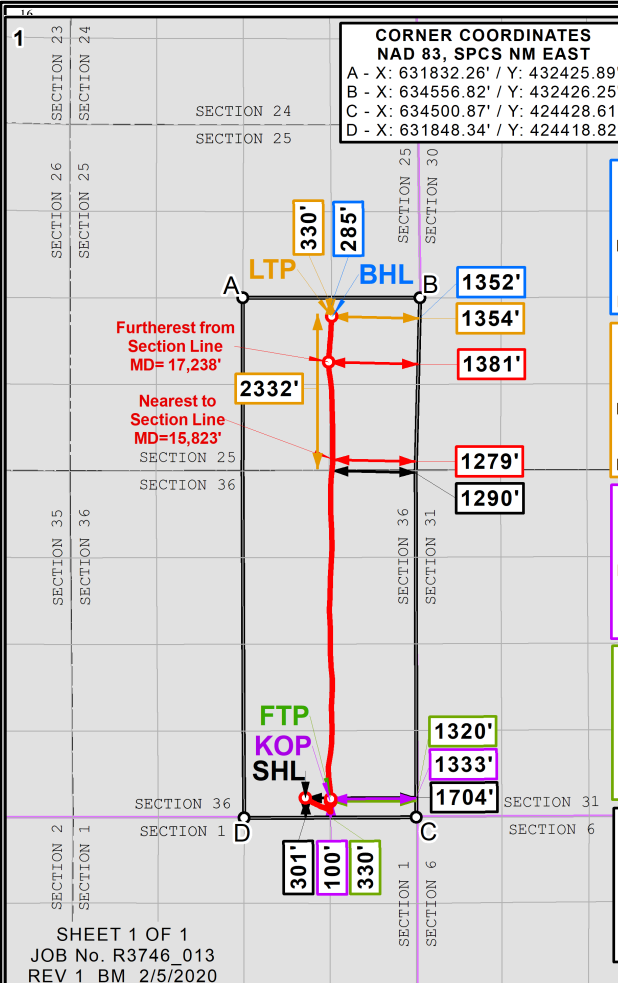
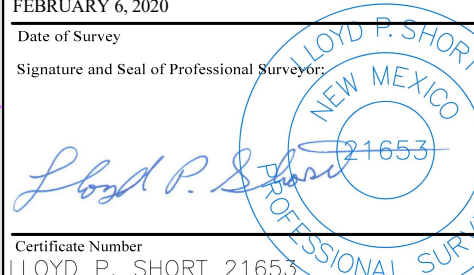
WELL LOCATION AND ACREAGE DEDICATION AS-DRILLED PLAT

¹ API Number 30-015-46202	² Pool Code 98220	³ Pool Name Purple Sage; Wolfcamp (Gas)
⁴ Property Code 325961	Property Name Southern Comfort 36 WD State	⁶ Well Number 8H
⁷ OGRID No. 372098	⁸ Operator Name MARATHON OIL PERMIAN LLC	⁹ Elevation 2932'

¹⁰ Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
O	36	24S	28E		301	SOUTH	1704	EAST	EDDY
¹¹ Bottom Hole Location If Different From Surface									
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
I	25	24S	28E		2377	SOUTH	1352	EAST	EDDY
¹² Dedicated Acres 480.0	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No.						

No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the division.

	CORNER COORDINATES NAD 83, SPCS NM EAST A - X: 631832.26' / Y: 432425.89' B - X: 634556.82' / Y: 432426.25' C - X: 634500.87' / Y: 424428.61' D - X: 631848.34' / Y: 424418.82'	CORNER COORDINATES NAD 27, SPCS NM EAST A - X: 590648.34' / Y: 432367.36' B - X: 593372.85' / Y: 432367.69' C - X: 593316.72' / Y: 424370.20' D - X: 590664.24' / Y: 424360.45'
	BOTTOM HOLE LOCATION 17945' MEASURED DEPTH IN FEET NAD 83, SPCS NM EAST X: 633197.19' / Y: 432140.70' LAT: 32.18768376N / LON: 104.03639445W NAD 27, SPCS NM EAST X: 592013.24' / Y: 432082.16' LAT: 32.18756116N / LON: 104.03590488W	LAST TAKE POINT 17900' MEASURED DEPTH IN FEET NAD 83, SPCS NM EAST X: 633194.66' / Y: 432095.97' LAT: 32.18756083N / LON: 104.03640303W NAD 27, SPCS NM EAST X: 592010.71' / Y: 432037.43' LAT: 32.18743822N / LON: 104.03591346W
	KICK OFF POINT 9990' MEASURED DEPTH IN FEET NAD 83, SPCS NM EAST X: 633167.68' / Y: 424523.09' LAT: 32.16674401N / LON: 104.03655778W NAD 27, SPCS NM EAST X: 591983.56' / Y: 424464.70' LAT: 32.16662116N / LON: 104.03606886W	FIRST TAKE POINT 10495' MEASURED DEPTH IN FEET NAD 83, SPCS NM EAST X: 633179.94' / Y: 424753.67' LAT: 32.16737775N / LON: 104.03651610W NAD 27, SPCS NM EAST X: 591995.82' / Y: 424695.27' LAT: 32.16725491N / LON: 104.03602717W
	SURFACE HOLE LOCATION 301' FSL 1704' FEL, SECTION 36 NAD 83, SPCS NM EAST X: 632795.72' / Y: 424723.74' LAT: 32.16729838N / LON: 104.03775808W NAD 27, SPCS NM EAST X: 591611.61' / Y: 424665.35' LAT: 32.16717556N / LON: 104.03726910W	
	17 OPERATOR CERTIFICATION I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division. Signature:  Date: 5/7/2020	
SURVEYOR CERTIFICATION I hereby certify that the well surface location shown on this plat was plotted from field notes of the as-staked surveys made by me or under my supervision, and that the same is true and correct to the best of my belief. Data used for underground measurements were provided by others for reference only and does not constitute field measurements performed by R-Squared Global. FEBRUARY 6, 2020 Date of Survey Signature and Seal of Professional Surveyor:  Certificate Number: LLOYD P. SHORT 21653		

Distances/areas relative to NAD 83 Combined Scale Factor: 0.999918652 Convergence Angle: 00°09'25.95151"



Marathon Oil Permian LLC

Eddy County, New Mexico (NAD 27)

Sec 36, T24S, R28E

Southern Comfort 36 WD State #8H

Wellbore #1

Design: Wellbore #1

QES Survey Certification Report

26 January, 2020



Quintana Energy Services

11390 FM 830
Willis, TX 77318
Phone: (936) 856-4332
Fax: (936) 856-8678



Survey Certification Sheet

Company	Job Number	Date
Marathon Oil Permian LLC	WT-191858	1/26/2020

Lease	Well Name	County & State
Sec 36, T24S, R28E	Southern Comfort 36 WD State #008H	Eddy, New Mexico

API No.	OH Survey Depth Range	Survey Type
30-015-46202	749 feet to 10571 feet MD	MWD

ST01 Information	Directional Supervisor/Surveyor
9963 feet to 13687 feet MD	Beau Shelton

ST02 Information	Directional Supervisor/Surveyor
13364 feet to 17945 feet MD	Beau Shelton

Certification Statement

The data and calculations for this survey have been checked by me and conform to the standards and procedures set forth by Quintana Energy Services (QES). This report represents a true and correct directional survey of this well based on the original data obtained at the well site. Wellbore coordinates are calculated using minimum curvature.

Kristopher Ray
Regulatory Compliance Manager
Quintana Energy Services

Company:	Marathon Oil Permian LLC	Local Co-ordinate Reference:	Well Southern Comfort 36 WD State #8H
Project:	Eddy County, New Mexico (NAD 27)	TVD Reference:	WELL @ 2957.0usft (PD #101)
Site:	Sec 36, T24S, R28E	MD Reference:	WELL @ 2957.0usft (PD #101)
Well:	Southern Comfort 36 WD State #8H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 Single User Db

Project	Eddy County, New Mexico (NAD 27)		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico East 3001		

Site	Sec 36, T24S, R28E				
Site Position:		Northing:	424,665.45 usft	Latitude:	32° 10' 1.834 N
From:	Map	Easting:	591,581.64 usft	Longitude:	104° 2' 14.517 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16"	Grid Convergence:	0.16 °

Well	Southern Comfort 36 WD State #8H					
Well Position	+N/-S	0.0 usft	Northing:	424,665.35 usft	Latitude:	32° 10' 1.832 N
	+E/-W	0.0 usft	Easting:	591,611.61 usft	Longitude:	104° 2' 14.169 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	usft	Ground Level:	2,932.0 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM_FILE	12/18/2019	6.95	59.87	47,825.20000000

Design	Wellbore #1				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction	
	(usft)	(usft)	(usft)	(°)	
	0.0	0.0	0.0	3.12	

Survey Program	Date	1/26/2020			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
81.8	429.9	Surface Surveys (Wellbore #1)	GYRO-MWD	OWSG Gyro MWD	
464.0	749.0	Surface gyro Surveys (Wellbore #1)	GYRO-MWD	OWSG Gyro MWD	
806.0	10,571.0	QES MWD Surveys (Wellbore #1)	MWD	OWSG MWD - Standard	

Survey								
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)	
749.0	2.33	161.19	748.8	-11.6	-10.3	15.5	221.61	
Gyro Tie In @ 749.0'MD / 748.8' TVD								
806.0	2.81	134.39	805.7	-13.6	-8.9	16.3	213.11	
900.0	3.38	116.81	899.6	-16.5	-4.8	17.2	196.13	
993.0	3.34	115.85	992.5	-18.9	0.1	18.9	179.65	
1,087.0	1.98	120.15	1,086.3	-20.9	4.0	21.3	169.22	
1,181.0	0.70	94.84	1,180.3	-21.8	6.0	22.6	164.70	
1,275.0	1.10	48.70	1,274.3	-21.2	7.2	22.4	161.25	
1,369.0	1.45	44.39	1,368.3	-19.8	8.7	21.6	156.22	
1,462.0	1.45	59.07	1,461.3	-18.3	10.6	21.2	150.09	

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Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 Single User Db

Survey								
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)	
1,552.0	2.15	82.71	1,551.2	-17.5	13.2	22.0	143.04	
1,641.0	3.60	97.48	1,640.1	-17.7	17.6	25.0	135.11	
1,730.0	4.97	110.49	1,728.9	-19.4	24.0	30.9	128.95	
1,820.0	5.54	117.69	1,818.5	-22.8	31.5	38.9	125.88	
1,909.0	5.58	116.37	1,907.1	-26.7	39.2	47.4	124.28	
1,999.0	6.24	117.96	1,996.6	-31.0	47.4	56.6	123.13	
2,088.0	6.33	117.25	2,085.0	-35.5	56.1	66.3	122.32	
2,177.0	5.14	120.94	2,173.6	-39.8	63.8	75.2	121.91	
2,267.0	5.32	123.76	2,263.2	-44.2	70.8	83.4	121.96	
2,356.0	6.73	122.88	2,351.7	-49.3	78.6	92.8	122.09	
2,445.0	6.81	124.81	2,440.1	-55.1	87.3	103.2	122.27	
2,535.0	5.10	121.91	2,529.6	-60.3	95.1	112.6	122.38	
2,624.0	4.09	119.01	2,618.3	-63.9	101.2	119.7	122.27	
2,660.0	4.22	119.54	2,654.2	-65.2	103.5	122.3	122.21	
2,797.0	4.44	117.16	2,790.8	-70.1	112.6	132.6	121.90	
2,886.0	4.31	116.92	2,879.6	-73.2	118.6	139.4	121.67	
2,976.0	4.22	117.27	2,969.3	-76.2	124.6	146.1	121.46	
3,066.0	4.18	116.48	3,059.1	-79.2	130.5	152.6	121.26	
3,155.0	4.22	117.71	3,147.9	-82.2	136.3	159.1	121.09	
3,245.0	4.26	118.06	3,237.6	-85.3	142.2	165.8	120.96	
3,334.0	4.09	117.27	3,326.4	-88.3	147.9	172.2	120.84	
3,424.0	4.04	117.88	3,416.1	-91.3	153.5	178.6	120.72	
3,513.0	3.91	117.18	3,504.9	-94.1	159.0	184.8	120.62	
3,603.0	3.38	114.10	3,594.7	-96.6	164.2	190.5	120.47	
3,693.0	3.12	113.75	3,684.6	-98.7	168.8	195.5	120.30	
3,782.0	3.74	108.13	3,773.4	-100.5	173.8	200.8	120.05	
3,872.0	3.78	106.28	3,863.3	-102.3	179.4	206.5	119.68	
3,961.0	3.65	105.05	3,952.1	-103.8	185.0	212.1	119.31	
4,051.0	4.44	120.08	4,041.8	-106.3	190.8	218.4	119.13	
4,141.0	4.31	118.76	4,131.6	-109.7	196.8	225.3	119.14	
4,230.0	4.09	120.70	4,220.3	-112.9	202.4	231.8	119.16	
4,319.0	4.00	120.43	4,309.1	-116.1	207.8	238.1	119.19	
4,409.0	3.74	121.49	4,398.9	-119.2	213.0	244.1	119.24	
4,498.0	3.69	122.89	4,487.7	-122.3	217.9	249.9	119.31	
4,588.0	3.43	124.74	4,577.6	-125.4	222.6	255.5	119.40	
4,678.0	2.99	119.29	4,667.4	-128.1	226.8	260.5	119.46	
4,767.0	3.12	118.94	4,756.3	-130.4	231.0	265.2	119.45	
4,857.0	2.95	117.71	4,846.2	-132.7	235.2	270.0	119.43	
4,946.0	3.91	106.81	4,935.0	-134.6	240.1	275.3	119.28	
5,035.0	3.96	106.55	5,023.8	-136.4	245.9	281.2	119.01	
5,125.0	4.92	105.84	5,113.5	-138.3	252.6	288.0	118.70	
5,214.0	4.53	105.84	5,202.2	-140.3	259.7	295.2	118.38	
5,304.0	4.13	107.07	5,292.0	-142.2	266.2	301.8	118.12	
5,393.0	4.75	108.74	5,380.7	-144.4	272.8	308.6	117.89	

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Well:	Southern Comfort 36 WD State #8H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 Single User Db

Survey								
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)	
5,483.0	5.01	107.86	5,470.4	-146.8	280.0	316.2	117.66	
5,572.0	4.53	109.53	5,559.1	-149.1	287.0	323.5	117.45	
5,662.0	4.09	109.71	5,648.8	-151.4	293.4	330.2	117.29	
5,752.0	4.48	108.04	5,738.6	-153.6	299.8	336.8	117.13	
5,841.0	4.65	110.68	5,827.3	-155.9	306.5	343.8	116.97	
5,931.0	4.35	115.42	5,917.0	-158.7	312.9	350.9	116.89	
6,020.0	4.04	117.36	6,005.8	-161.6	318.8	357.4	116.88	
6,110.0	4.88	116.13	6,095.5	-164.7	325.0	364.4	116.87	
6,199.0	4.97	116.92	6,184.2	-168.1	331.9	372.0	116.87	
6,289.0	4.44	119.47	6,273.8	-171.6	338.4	379.4	116.89	
6,378.0	3.82	120.78	6,362.6	-174.8	343.9	385.8	116.94	
6,468.0	3.43	110.24	6,452.4	-177.3	349.0	391.5	116.93	
6,557.0	4.92	115.77	6,541.2	-179.9	355.0	397.9	116.87	
6,647.0	4.53	112.87	6,630.9	-182.9	361.7	405.3	116.83	
6,737.0	3.74	117.00	6,720.7	-185.6	367.6	411.8	116.79	
6,827.0	3.47	119.55	6,810.5	-188.3	372.6	417.5	116.81	
6,916.0	3.12	124.39	6,899.3	-191.0	376.9	422.6	116.87	
7,006.0	2.90	118.59	6,989.2	-193.5	380.9	427.3	116.92	
7,095.0	1.89	109.53	7,078.1	-195.0	384.3	431.0	116.91	
7,185.0	1.45	110.41	7,168.1	-195.9	386.8	433.6	116.87	
7,275.0	1.19	129.57	7,258.1	-196.9	388.6	435.6	116.88	
7,364.0	0.75	165.52	7,347.1	-198.1	389.4	436.9	116.96	
7,454.0	0.79	175.63	7,437.0	-199.3	389.6	437.6	117.09	
7,544.0	0.62	176.68	7,527.0	-200.4	389.7	438.2	117.21	
7,633.0	0.57	201.56	7,616.0	-201.3	389.6	438.5	117.32	
7,723.0	1.01	203.23	7,706.0	-202.4	389.1	438.6	117.49	
7,813.0	1.45	182.48	7,796.0	-204.3	388.7	439.1	117.72	
7,902.0	1.89	160.25	7,885.0	-206.8	389.2	440.7	117.98	
7,991.0	2.24	171.06	7,973.9	-209.9	389.9	442.8	118.29	
8,081.0	0.97	219.92	8,063.9	-212.2	389.7	443.7	118.57	
8,170.0	1.19	253.50	8,152.9	-213.0	388.3	442.9	118.75	
8,260.0	1.45	255.96	8,242.8	-213.6	386.3	441.5	118.94	
8,349.0	1.36	255.78	8,331.8	-214.1	384.2	439.9	119.13	
8,438.0	1.67	306.06	8,420.8	-213.6	382.2	437.8	119.20	
8,528.0	1.76	312.83	8,510.7	-211.9	380.1	435.2	119.14	
8,617.0	2.02	293.40	8,599.7	-210.4	377.6	432.3	119.12	
8,707.0	1.54	299.82	8,689.7	-209.1	375.1	429.5	119.14	
8,796.0	1.98	326.10	8,778.6	-207.3	373.2	426.9	119.04	
8,886.0	2.07	330.32	8,868.6	-204.5	371.6	424.2	118.83	
8,976.0	1.67	328.73	8,958.5	-202.0	370.1	421.6	118.63	
9,037.0	1.36	325.04	9,019.5	-200.7	369.2	420.2	118.52	
9,114.0	1.14	317.31	9,096.5	-199.4	368.2	418.7	118.43	
9,208.0	1.27	358.09	9,190.4	-197.6	367.5	417.3	118.27	
9,303.0	1.01	45.90	9,285.4	-196.0	368.1	417.0	118.03	
9,397.0	0.57	99.87	9,379.4	-195.5	369.1	417.7	117.91	

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Well:	Southern Comfort 36 WD State #8H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 Single User Db

Survey								
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)	
9,493.0	0.79	146.18	9,475.4	-196.1	370.0	418.7	117.93	
9,587.0	0.75	155.85	9,569.4	-197.2	370.6	419.8	118.02	
9,682.0	0.97	162.80	9,664.4	-198.6	371.1	420.8	118.15	
9,776.0	0.97	161.92	9,758.4	-200.1	371.5	422.0	118.30	
9,870.0	1.45	180.55	9,852.4	-202.0	371.8	423.1	118.52	
9,963.0	0.53	188.51	9,945.3	-203.6	371.7	423.8	118.71	
10,059.0	94.00	5.00	10,003.9	-141.6	377.1	402.8	110.58	
10,153.0	94.00	7.00	9,997.4	-48.4	386.9	389.9	97.12	
10,247.0	94.00	12.00	9,990.8	44.1	402.4	404.8	83.75	
10,342.0	95.00	19.00	9,983.4	135.3	427.7	448.5	72.44	
10,436.0	94.00	24.00	9,976.0	222.5	462.0	512.8	64.29	
10,520.0	84.00	21.00	9,977.4	299.9	494.1	578.0	58.74	
10,571.0	51.00	21.00	9,996.7	343.3	510.7	615.4	56.09	
OH TD @ 10571.0' MD / 9996.7' TVD								

Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N/-S (usft)	+E/-W (usft)		
749.0	748.8	-11.6	-10.3	Gyro Tie In @ 749.0'MD / 748.8' TVD	
10,571.0	9,996.7	343.3	510.7	OH TD @ 10571.0' MD / 9996.7' TVD	

Checked By: _____	Approved By: _____	Date: _____
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Marathon Oil Permian LLC

Eddy County, New Mexico (NAD 27)

Sec 36, T24S, R28E

Southern Comfort 36 WD State #8H

ST01

Design: ST01

QES Survey Certification Report

26 January, 2020



Company:	Marathon Oil Permian LLC	Local Co-ordinate Reference:	Well Southern Comfort 36 WD State #8H
Project:	Eddy County, New Mexico (NAD 27)	TVD Reference:	WELL @ 2957.0usft (PD #101)
Site:	Sec 36, T24S, R28E	MD Reference:	WELL @ 2957.0usft (PD #101)
Well:	Southern Comfort 36 WD State #8H	North Reference:	Grid
Wellbore:	ST01	Survey Calculation Method:	Minimum Curvature
Design:	ST01	Database:	EDM 5000.1 Single User Db

Project	Eddy County, New Mexico (NAD 27)		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico East 3001		

Site	Sec 36, T24S, R28E				
Site Position:		Northing:	424,665.45 usft	Latitude:	32° 10' 1.834 N
From:	Map	Easting:	591,581.64 usft	Longitude:	104° 2' 14.517 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16"	Grid Convergence:	0.16 °

Well	Southern Comfort 36 WD State #8H					
Well Position	+N/-S	0.0 usft	Northing:	424,665.35 usft	Latitude:	32° 10' 1.832 N
	+E/-W	0.0 usft	Easting:	591,611.61 usft	Longitude:	104° 2' 14.169 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	usft	Ground Level:	2,932.0 usft

Wellbore	ST01				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM_FILE	12/31/2019	6.95	59.87	47,821.30000000

Design	ST01				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction	
	(usft)	(usft)	(usft)	(°)	
	0.0	0.0	0.0	3.12	

Survey Program	Date	1/18/2020			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
81.8	429.9	Surface Surveys (Wellbore #1)	GYRO-MWD	OWSG Gyro MWD	
464.0	749.0	Surface gyro Surveys (Wellbore #1)	GYRO-MWD	OWSG Gyro MWD	
806.0	9,963.0	QES MWD Surveys (Wellbore #1)	MWD	OWSG MWD - Standard	
10,058.0	13,687.0	QES MWD Surveys (ST01)	MWD	OWSG MWD - Standard	

Survey								
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)	
9,963.0	0.53	188.51	9,945.3	-203.6	371.7	423.8	118.71	
ST01 Tie-in @ 9963.0' MD / 9945.3' TVD								
10,058.0	14.37	5.26	10,039.4	-192.3	372.7	419.4	117.29	
10,152.0	23.52	8.60	10,128.2	-162.0	376.6	410.0	113.28	
10,246.0	28.40	10.09	10,212.7	-121.4	383.3	402.1	107.58	
10,341.0	34.15	0.25	10,293.9	-72.5	387.4	394.1	100.60	
10,435.0	43.25	357.79	10,367.2	-13.8	386.3	386.5	92.04	
10,530.0	53.71	356.91	10,430.1	57.2	383.0	387.2	81.51	
10,625.0	63.65	355.24	10,479.4	138.0	377.3	401.8	69.91	

Company:	Marathon Oil Permian LLC	Local Co-ordinate Reference:	Well Southern Comfort 36 WD State #8H
Project:	Eddy County, New Mexico (NAD 27)	TVD Reference:	WELL @ 2957.0usft (PD #101)
Site:	Sec 36, T24S, R28E	MD Reference:	WELL @ 2957.0usft (PD #101)
Well:	Southern Comfort 36 WD State #8H	North Reference:	Grid
Wellbore:	ST01	Survey Calculation Method:	Minimum Curvature
Design:	ST01	Database:	EDM 5000.1 Single User Db

Survey								
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)	
10,720.0	69.27	354.18	10,517.3	224.7	369.3	432.3	58.68	
10,815.0	71.56	353.04	10,549.2	313.7	359.3	477.0	48.88	
10,909.0	76.53	356.03	10,575.0	403.6	350.8	534.7	40.99	
11,003.0	83.43	3.94	10,591.4	496.0	350.8	607.5	35.27	
11,098.0	89.71	13.61	10,597.1	589.6	365.3	693.6	31.78	
11,191.0	86.73	7.45	10,600.0	680.9	382.3	780.9	29.31	
11,286.0	88.31	6.31	10,604.1	775.1	393.6	869.3	26.92	
11,380.0	88.40	3.94	10,606.8	868.7	402.0	957.2	24.83	
11,474.0	90.20	1.21	10,607.9	962.6	406.2	1,044.8	22.88	
11,568.0	90.68	359.28	10,607.2	1,056.6	406.6	1,132.1	21.05	
11,662.0	88.62	358.58	10,607.8	1,150.6	404.9	1,219.7	19.39	
11,757.0	88.48	357.52	10,610.2	1,245.5	401.7	1,308.6	17.87	
11,852.0	87.34	357.52	10,613.7	1,340.3	397.5	1,398.0	16.52	
11,947.0	89.36	2.97	10,616.4	1,435.2	398.0	1,489.4	15.50	
12,041.0	90.81	4.64	10,616.3	1,529.0	404.2	1,581.5	14.81	
12,136.0	87.69	2.80	10,617.5	1,623.8	410.4	1,674.9	14.18	
12,230.0	85.41	359.90	10,623.2	1,717.6	412.6	1,766.4	13.51	
12,325.0	86.99	359.19	10,629.4	1,812.4	411.8	1,858.6	12.80	
12,420.0	92.35	351.99	10,630.0	1,907.0	404.5	1,949.4	11.98	
12,513.0	95.12	355.85	10,623.9	1,999.2	394.7	2,037.8	11.17	
12,608.0	88.26	356.47	10,621.1	2,093.9	388.3	2,129.6	10.51	
12,703.0	88.97	358.49	10,623.4	2,188.8	384.2	2,222.3	9.95	
12,797.0	88.40	0.34	10,625.6	2,282.8	383.2	2,314.7	9.53	
12,892.0	88.84	0.25	10,627.9	2,377.7	383.7	2,408.5	9.17	
12,986.0	89.71	359.72	10,629.1	2,471.7	383.7	2,501.3	8.82	
13,080.0	91.25	359.54	10,628.3	2,565.7	383.0	2,594.2	8.49	
13,175.0	89.98	355.94	10,627.3	2,660.6	379.3	2,687.5	8.11	
13,269.0	92.13	356.47	10,625.5	2,754.4	373.1	2,779.6	7.71	
13,364.0	88.97	357.00	10,624.6	2,849.2	367.7	2,872.9	7.35	
13,458.0	97.54	0.78	10,619.3	2,943.0	365.8	2,965.6	7.09	
13,552.0	99.69	4.12	10,605.2	3,035.8	369.8	3,058.2	6.95	
13,634.0	96.66	3.41	10,593.5	3,116.8	375.1	3,139.3	6.86	
13,687.0	96.66	3.41	10,587.4	3,169.3	378.3	3,191.8	6.81	
ST01 TD @ 13687.0' MD / 10587.4' TVD								

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
429.9	429.8	-4.9	-5.8	Tie-in @ 429.9' MD / 429.8' TVD
9,963.0	9,945.3	-203.6	371.7	ST01 Tie-in @ 9963.0' MD / 9945.3' TVD
13,687.0	10,587.4	3,169.3	378.3	ST01 TD @ 13687.0' MD / 10587.4' TVD

Checked By: _____ Approved By: _____ Date: _____



Marathon Oil Permian LLC

Eddy County, New Mexico (NAD 27)

Sec 36, T24S, R28E

Southern Comfort 36 WD State #8H

ST02

Design: ST02

QES Survey Certification Report

26 January, 2020



Company:	Marathon Oil Permian LLC	Local Co-ordinate Reference:	Well Southern Comfort 36 WD State #8H
Project:	Eddy County, New Mexico (NAD 27)	TVD Reference:	WELL @ 2957.0usft (PD #101)
Site:	Sec 36, T24S, R28E	MD Reference:	WELL @ 2957.0usft (PD #101)
Well:	Southern Comfort 36 WD State #8H	North Reference:	Grid
Wellbore:	ST02	Survey Calculation Method:	Minimum Curvature
Design:	ST02	Database:	EDM 5000.1 Single User Db

Project	Eddy County, New Mexico (NAD 27)		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico East 3001		

Site	Sec 36, T24S, R28E		
Site Position:		Northing:	424,665.45 usft
From:	Map	Easting:	591,581.64 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16"
		Latitude:	32° 10' 1.834 N
		Longitude:	104° 2' 14.517 W
		Grid Convergence:	0.16 °

Well	Southern Comfort 36 WD State #8H					
Well Position	+N/-S	0.0 usft	Northing:	424,665.35 usft	Latitude:	32° 10' 1.832 N
	+E/-W	0.0 usft	Easting:	591,611.61 usft	Longitude:	104° 2' 14.169 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	usft	Ground Level:	2,932.0 usft

Wellbore	ST02				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM2019	12/31/2019	6.95	59.87	47,821.30000000

Design	ST02				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	13,364.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.0	0.0	0.0	3.10	

Survey Program	Date	1/26/2020			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
81.8	429.9	Surface Surveys (Wellbore #1)	GYRO-MWD	OWSG Gyro MWD	
464.0	749.0	Surface gyro Surveys (Wellbore #1)	GYRO-MWD	OWSG Gyro MWD	
806.0	9,963.0	QES MWD Surveys (Wellbore #1)	MWD	OWSG MWD - Standard	
10,058.0	13,364.0	QES MWD Surveys (ST01)	MWD	OWSG MWD - Standard	
13,460.0	17,945.0	QES MWD Surveys (ST02)	MWD	OWSG MWD - Standard	

Survey								
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)	
13,364.0	88.97	357.00	10,624.6	2,849.2	367.7	2,872.9	7.35	
ST02 Tie In @ 13364.0'MD / 10624.6' TVD								
13,460.0	88.00	2.71	10,627.2	2,945.2	367.4	2,968.0	7.11	
13,554.0	91.12	3.15	10,627.9	3,039.0	372.2	3,061.7	6.98	
13,648.0	90.33	1.65	10,626.7	3,132.9	376.2	3,155.4	6.85	
13,742.0	90.51	1.65	10,626.0	3,226.9	378.9	3,249.1	6.70	
13,837.0	89.58	1.48	10,625.9	3,321.9	381.5	3,343.7	6.55	
13,931.0	89.80	2.27	10,626.4	3,415.8	384.5	3,437.4	6.42	

Company:	Marathon Oil Permian LLC	Local Co-ordinate Reference:	Well Southern Comfort 36 WD State #8H
Project:	Eddy County, New Mexico (NAD 27)	TVD Reference:	WELL @ 2957.0usft (PD #101)
Site:	Sec 36, T24S, R28E	MD Reference:	WELL @ 2957.0usft (PD #101)
Well:	Southern Comfort 36 WD State #8H	North Reference:	Grid
Wellbore:	ST02	Survey Calculation Method:	Minimum Curvature
Design:	ST02	Database:	EDM 5000.1 Single User Db

Survey								
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)	
14,026.0	89.67	2.80	10,626.9	3,510.7	388.7	3,532.2	6.32	
14,121.0	89.01	3.59	10,628.0	3,605.6	394.0	3,627.0	6.24	
14,215.0	85.63	3.41	10,632.4	3,699.3	399.8	3,720.8	6.17	
14,310.0	89.76	3.15	10,636.2	3,794.0	405.2	3,815.6	6.10	
14,405.0	89.01	359.81	10,637.2	3,889.0	407.7	3,910.3	5.98	
14,500.0	94.55	357.79	10,634.3	3,983.8	405.7	4,004.4	5.81	
14,594.0	94.59	357.79	10,626.8	4,077.5	402.1	4,097.3	5.63	
14,689.0	93.05	356.38	10,620.4	4,172.1	397.2	4,191.0	5.44	
14,785.0	87.25	357.08	10,620.2	4,267.9	391.8	4,285.9	5.24	
14,880.0	86.90	358.14	10,625.0	4,362.7	387.8	4,379.9	5.08	
14,974.0	88.88	359.54	10,628.5	4,456.6	385.9	4,473.3	4.95	
15,069.0	89.80	0.51	10,629.6	4,551.6	385.9	4,568.0	4.85	
15,164.0	87.69	0.34	10,631.7	4,646.6	386.7	4,662.7	4.76	
15,258.0	87.96	0.86	10,635.2	4,740.5	387.6	4,756.4	4.67	
15,352.0	92.79	1.48	10,634.6	4,834.5	389.6	4,850.2	4.61	
15,447.0	92.48	5.08	10,630.3	4,929.2	395.0	4,945.0	4.58	
15,543.0	90.07	5.17	10,628.1	5,024.8	403.6	5,041.0	4.59	
15,637.0	90.81	5.17	10,627.4	5,118.4	412.0	5,135.0	4.60	
15,730.0	87.56	3.41	10,628.7	5,211.1	419.0	5,227.9	4.60	
15,823.0	87.60	359.98	10,632.6	5,304.0	421.7	5,320.7	4.55	
15,918.0	86.68	359.37	10,637.4	5,398.9	421.2	5,415.3	4.46	
16,012.0	91.74	359.72	10,638.7	5,492.8	420.4	5,508.9	4.38	
16,106.0	89.93	358.93	10,637.3	5,586.8	419.3	5,602.5	4.29	
16,201.0	90.90	358.93	10,636.6	5,681.8	417.6	5,697.1	4.20	
16,295.0	90.55	358.75	10,635.4	5,775.8	415.7	5,790.7	4.12	
16,389.0	88.84	358.14	10,635.9	5,869.7	413.1	5,884.2	4.03	
16,484.0	90.68	359.37	10,636.3	5,964.7	411.0	5,978.8	3.94	
16,578.0	86.51	357.96	10,638.6	6,058.6	408.9	6,072.4	3.86	
16,673.0	91.16	358.05	10,640.6	6,153.5	405.6	6,166.9	3.77	
16,768.0	88.44	357.08	10,640.9	6,248.4	401.5	6,261.3	3.68	
16,862.0	85.23	354.27	10,646.1	6,342.0	394.4	6,354.2	3.56	
16,957.0	88.79	353.04	10,651.0	6,436.2	384.0	6,447.7	3.41	
17,050.0	91.78	348.21	10,650.6	6,528.0	368.8	6,538.4	3.23	
17,144.0	101.54	356.64	10,639.7	6,620.3	356.5	6,629.9	3.08	
17,238.0	97.80	1.57	10,623.9	6,712.9	355.0	6,722.3	3.03	
17,333.0	95.56	3.68	10,612.8	6,807.2	359.4	6,816.6	3.02	
17,427.0	94.42	5.17	10,604.6	6,900.5	366.6	6,910.3	3.04	
17,522.0	92.75	4.55	10,598.7	6,995.0	374.6	7,005.0	3.07	
17,616.0	92.75	4.20	10,594.2	7,088.6	381.8	7,098.9	3.08	
17,711.0	90.24	3.68	10,591.7	7,183.3	388.3	7,193.8	3.09	
17,805.0	89.89	2.97	10,591.6	7,277.2	393.8	7,287.8	3.10	
17,887.0	89.89	3.24	10,591.8	7,359.1	398.2	7,369.8	3.10	
17,945.0	89.89	3.24	10,591.9	7,417.0	401.5	7,427.8	3.10	
ST02 TD @ 17945.0' MD / 10591.9' TVD								

Company:	Marathon Oil Permian LLC	Local Co-ordinate Reference:	Well Southern Comfort 36 WD State #8H
Project:	Eddy County, New Mexico (NAD 27)	TVD Reference:	WELL @ 2957.0usft (PD #101)
Site:	Sec 36, T24S, R28E	MD Reference:	WELL @ 2957.0usft (PD #101)
Well:	Southern Comfort 36 WD State #8H	North Reference:	Grid
Wellbore:	ST02	Survey Calculation Method:	Minimum Curvature
Design:	ST02	Database:	EDM 5000.1 Single User Db

Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
13,364.0	10,624.6	2,849.2	367.7	ST02 Tie In @ 13364.0'MD / 10624.6' TVD	
17,945.0	10,591.9	7,417.0	401.5	ST02 TD @ 17945.0' MD / 10591.9' TVD	

Checked By: _____	Approved By: _____	Date: _____
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